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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/642,861

07/18/2003

Jeng-Jye Shau

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EXAMINER

PATEL, HETUL B

ART UNIT

PAPER NUMBER

2186

MAIL DATE

DELIVERY MODE

10/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/642,861

Applicant(s)

SHAU, JENG-JYE

Examiner

Hetul Patel

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-18 are presented for examination.

Drawings

2. The drawings are objected to because it should be "Send data to registers
Update all high level caches that had cache misses" instead of "Semd data tp regosters
Update all high level cashes that had cache misses" in the last box of the flow chart shown in Fig. 1(b). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The examiner believes that the title of the invention is broad. A descriptive title indicative of the invention will help in proper indexing, classifying, searching, etc. See MPEP 606.01. However, the title of the invention should be limited to 500 characters.

Claim Objections

4. Claim 10 is objected to because of the following informalities: the word "second" should be deleted in line 24 on page 28. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-6, 9-15 and 18 are rejected under 35 U.S.C. 102(a) and 35 U.S.C. 102(e) as being clearly anticipated by Rivers et al. (USPN: 6,078,532) hereinafter, Rivers.

As per claims 1 and 3, Rivers teaches a data access system (shown in Fig. 6) for accessing data stored in a first (i.e. the SRAM 614 in Fig. 6) and a second memory devices (i.e. the DRAM 612 in Fig. 6) wherein:

- said first and second memory devices having a difference of latency ΔL (e.g. see Col. 1, lines 29-32) constituting a time-duration by which said first memory device starts an initial data access earlier than in said second memory device (e.g. see the abstract); and
- a data access means for simultaneously accessing data in said first and second memory devices and for stopping accessing data in said first memory device once a data access operation has begun in said second memory device whereby said first memory device storing data only accessed initially in a time duration corresponding substantially to said difference of latency ΔL (e.g. see Col. 3, lines 2-22 and Col. 6, lines 5-22 and Fig. 5).

As per claim 2, Rivers teaches the claimed invention as described above and furthermore, Rivers teaches that the first and second memory devices having substantially a same continuous data access rate after said initial data accesses in said first and second memory devices are completed (e.g. see Col. 3, lines 10-12).

As per claim 4, Rivers teaches the claimed invention as described above and furthermore, Rivers teaches that the DRAM comprising a plurality of rows and said SRAM storing first several data of a plurality of rows (i.e. five words, for example) in said DRAM and said DRAM storing data of a plurality of entire rows in said DRAM (e.g. see Col. 3, lines 12-22).

As per claims 10-13, see arguments with respect to the rejection of claims 1-4, respectively. Claims 10-13 are also rejected based on the same rationale as the rejection claims 1-4, respectively.

As per claim 5, Rivers teaches a data memory system (shown in Fig. 6) comprising: a dynamic random access memory (DRAM) (i.e. 612 in Fig. 6) and a static random access memory (SRAM) (i.e. 614 in Fig. 6) wherein said DRAM comprising a plurality of rows and said SRAM storing first several data of a plurality of rows (i.e. five words, for example) in said DRAM and said DRAM storing data of a plurality of entire rows in said DRAM (e.g. see Col. 3, lines 12-22).

As per claim 6, Rivers teaches the claimed invention as described above and furthermore, Rivers teaches that a data access means simultaneously accessing data in said DRAM and said SRAM for stopping a data access from said SRAM when an initial data access in said DRAM begins (e.g. see Col. 3, lines 2-22 and Col. 6, lines 5-22 and Fig. 5).

As per claim 9, Rivers teaches the claimed invention as described above and furthermore, Rivers teaches that the SRAM storing first several data of a plurality of rows in said DRAM for accessing data from said SRAM during a DRAM latency period; and said DRAM storing data of a plurality of entire rows in said DRAM for accessing data from said DRAM immediately after said DRAM latency period (e.g. see Col. 3, lines 2-22 and Col. 6, lines 5-22 and Fig. 5).

As per claims 14-15 and 18, see arguments with respect to the rejection of claims 5-6 and 9, respectively. Claims 14-15 and 18 are also rejected based on the same rationale as the rejection claims 5-6 and 9, respectively.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7-8 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rivers.

As per claims 7 and 8, Rivers teaches the claimed invention as described above and furthermore, Rivers teaches that when the DRAM receives an instruction to provide memory from a "new" row, there will be a delay before requested data from the "new" row is sent; and once that delay is past, access to each successive word in row is relatively rapid (e.g. see Col. 1, lines 42-49). Rivers further discloses that the delay before initiation of the fast access cycle is very small in SRAM compared to that in DRAM (e.g. see Col. 4, lines 42-46). Therefore, it would have been obvious to one of ordinary skills in the art at the time of the current invention was made to modify the data memory system of Rivers so if an instruction to access data is for a data stored in a different row compared to a previous data access instruction, then sending said data access instructions to said SRAM and DRAM; else sending said data access

Art Unit: 2186

instructions directly to said DRAM, to avoid the longer delay in DRAM for opening "new" row(s).

As per claims 16-17, see arguments with respect to the rejection of claims 7-8, respectively. Claims 16-17 are also rejected based on the same rationale as the rejection claims 7-8, respectively.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hetul Patel whose telephone number is 571-272-4184. The examiner can normally be reached on 8:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2186

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Bataille 10/01/07
PIERRE MICHEL BATAILLE
PRIMARY EXAMINER
ART UNIT 2186